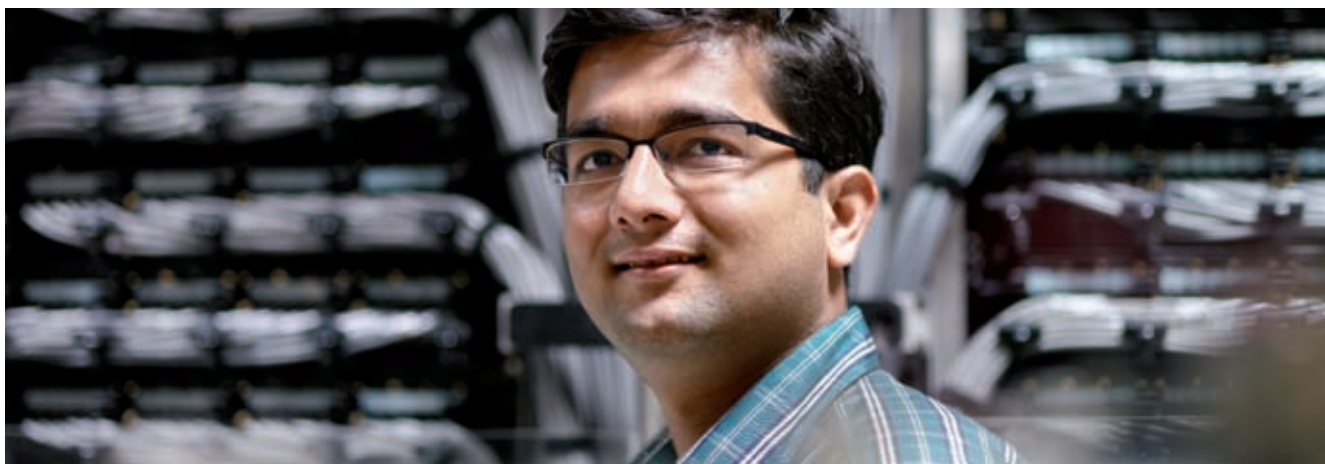


Intel® E8501 Chipset

Enabling Scalable Performance, Enhanced Virtualization, and Reliable Uptime in Dual-Core Intel® Xeon® Processor 7100 Series-based Servers



The Intel® E8501 chipset enables multi-processor (MP) scalability and performance in new platforms based on the Dual-Core Intel® Xeon® processor 7100¹ series, making the platform well-suited for running demanding, multi-threaded applications, such as enterprise resource planning (ERP), customer relationship management (CRM), supply-chain management (SCM), and databases.

With Intel built in, your company has confidence built in. The chipset is designed for longevity – architected for the Dual-Core Intel Xeon processor 7100 series, yet also compatible with Intel® single-core processors – for an enhanced lifespan and for helping to lower Total Cost of Ownership (TCO). The chipset's ability to support 64-bit as well as 32-bit applications lets you leverage your investment even further. It also offers increased bandwidth, and greater flexibility, manageability, and I/O integration than previous-generation Intel® multi-processor platform chipsets.





Improve Productivity and Help Lower Costs with New Reliability, Availability, and Serviceability (RAS) Innovations

The latest chips in the Dual-Core Intel Xeon Processor 7100 series are now based on Intel's 65 nm wafer fabrication process and Intel's dual-core technology. This means they can handle larger peak demands and increase your return on investment. And they help deliver outstanding performance for 32-bit software and increased headroom for 64-bit applications, running both simultaneously. The result? An investment that helps lower your TCO, while giving you the performance and flexibility you need to grow your business.

Reliability Feature	Benefit
Hot-plug I/O and memory	▪ Add I/O or memory after installation without service interruption
Memory mirroring	▪ Lets you split and duplicate system memory, protecting against uncorrectable errors or DRAM failure
Memory (DIMM) sparing	▪ Allows you to reserve spare memory capacity for use if current memory fails
Demand and patrol scrubbing	▪ The system proactively searches the system memory, repairing correctable errors or permanently marking the memory location as unreadable
X8 Single Device Data Correction (X8 SDDC) ²	▪ Allows you to remove a single DRAM from the memory map and recover its data into a new device
Error Correcting Code (ECC)	▪ The system detects single-bit and double-bit errors, automatically corrects single-bit errors on internal data paths, and retries transactions on double-bit errors
SMBus port	▪ Enables remote management operation and support for a variety of third-party BMC (baseboard management controller) and BIOS solutions
PIROM and thermal sensor	▪ Allows for scheduled service in the event of a system manufacturing defect or cooling device failure

Find out more about Dual-Core Intel Xeon processors at
www.intel.com/server

Boost Performance with Expanded Bandwidth

The system bandwidth of the Intel E8501 chipset is 12.8 GB/s. The chipset is designed with dual-independent 800 MHz system buses, each one architected to support two dual-core Intel Xeon processor 7100 series, enabling better throughput, faster access to memory, and shorter application response times. Extra bandwidth means your customers can process data transactions faster on fewer servers, helping to reduce the overhead costs of standard server reliability tools such as RAID.

Feature	Benefit
Dual-Core Intel® Xeon® processor 7100 ¹ series	<ul style="list-style-type: none">▪ Dual front-side buses for high throughput (667 and 800 MHz versions)▪ 64-bit processor, supporting 32-bit applications
Intel® Extended Memory 64 Technology ³	<ul style="list-style-type: none">▪ Enables extended memory addressability for server applications▪ Run both 32-bit and 64-bit applications
Demand-Based Switching (DBS) with Enhanced Intel SpeedStep® technology ⁴	<ul style="list-style-type: none">▪ Enables platform and software power management features to help lower average power consumption and heat generation while helping to maintain application performance and acoustics
High-speed, 3-load, front-side system bus (800 MHz)	<ul style="list-style-type: none">▪ 12.8 GB/s system throughput for demanding workloads
PCI Express* (PCIe*) serial I/O	<ul style="list-style-type: none">▪ Industry-standard serial I/O capable of up to 8 GB/s peak bandwidth▪ Improved RAS features compared to PCI-X*▪ Lower latency compared to PCI-X to help improve I/O performance▪ Software-compatible with PCI-X to simplify parallel-to-serial transition
DDR2-400 memory	<ul style="list-style-type: none">▪ Up to 128 GB of memory capacity for demanding workloads▪ Provides increased memory bandwidth over DDR1-333▪ Lower power consumption than DDR1-333 on systems tested⁵▪ Increased DIMMs per system for enhanced memory scalability
Enhanced reliability, availability, and serviceability (RAS) features	<ul style="list-style-type: none">▪ Memory controller features improve data error detection and protection, delivering enhanced data protection and security▪ PCI Express RAS features help improve platform I/O reliability and serviceability



Processor Numbering¹

At Intel, our processor series numbers help differentiate processor features beyond front-side bus speed and brand name. New advancements in our processors – other than bus speed – like architecture, cache, power dissipation, and embedded Intel® technologies, contribute significantly to performance, power efficiency, and other end-user benefits. Our processor sequences will help developers decide on the best processor for their platform designs, and help end-users understand all the characteristics that contribute to their overall experience.

Processor Sequence ¹	Used For
Dual-Core Intel® Xeon® processor 3000 sequence	Small business, entry, or first server
Dual-Core Intel® Xeon® processor 5000 sequence	Volume DP servers/workstations based on the Intel Xeon processor
Dual-Core Intel® Xeon® processor 7000 sequence	Greater scalability than DP platforms with MP enterprise servers based on the Intel Xeon processor for multi-processor platforms
Intel® Itanium® 2 processor 9000 sequence	Maximum performance and scalability for RISC replacement

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¹ Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. See http://www.intel.com/products/processor_number for details.

² In a x8 DDR memory device, the Intel® x8 Single Device Data Correction (x8 SDDC) provides error detection and correction for 1 to 8 data bits within a single device.

³ 64-bit computing on Intel architecture requires a computer system with a processor, chipset, BIOS, operating system, device drivers and applications enabled for Intel® 64 architecture. Processors will not operate (including 32-bit operation) without an Intel® 64 architecture-enabled BIOS. Performance will vary depending on your hardware and software configurations. Consult with your system vendor for more information.

⁴ Demand-based switching is not available on 95 watt SKUs.

⁵ For information, see <http://www.intel.com/technology/magazine/standards/st09042.pdf>

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